Emerging and future urban threats—implications for ops

NATO S&T Organization: SAS-149
Basics of complex modern urban functions and characteristics

David J. Kilcullen

Professor of International & Political Studies,
University of New South Wales, Canberra

Agenda

- Context

- Emerging technologies and urban conflict

- Emerging urban tactics

- Weaponizing the city

1.
Context

The environment for adversaries

- Western air superiority, but limited weight of allied air power and less capable local ground forces

- Pervasive electronic surveillance but high traffic volumes

- High degree of connectivity (cellphones, internet, social media, gaming networks) enabling propaganda and C2

- Pervasive smart handheld consumer electronics and support platforms

- Technological hugging of our systems (Google Earth, GPS)

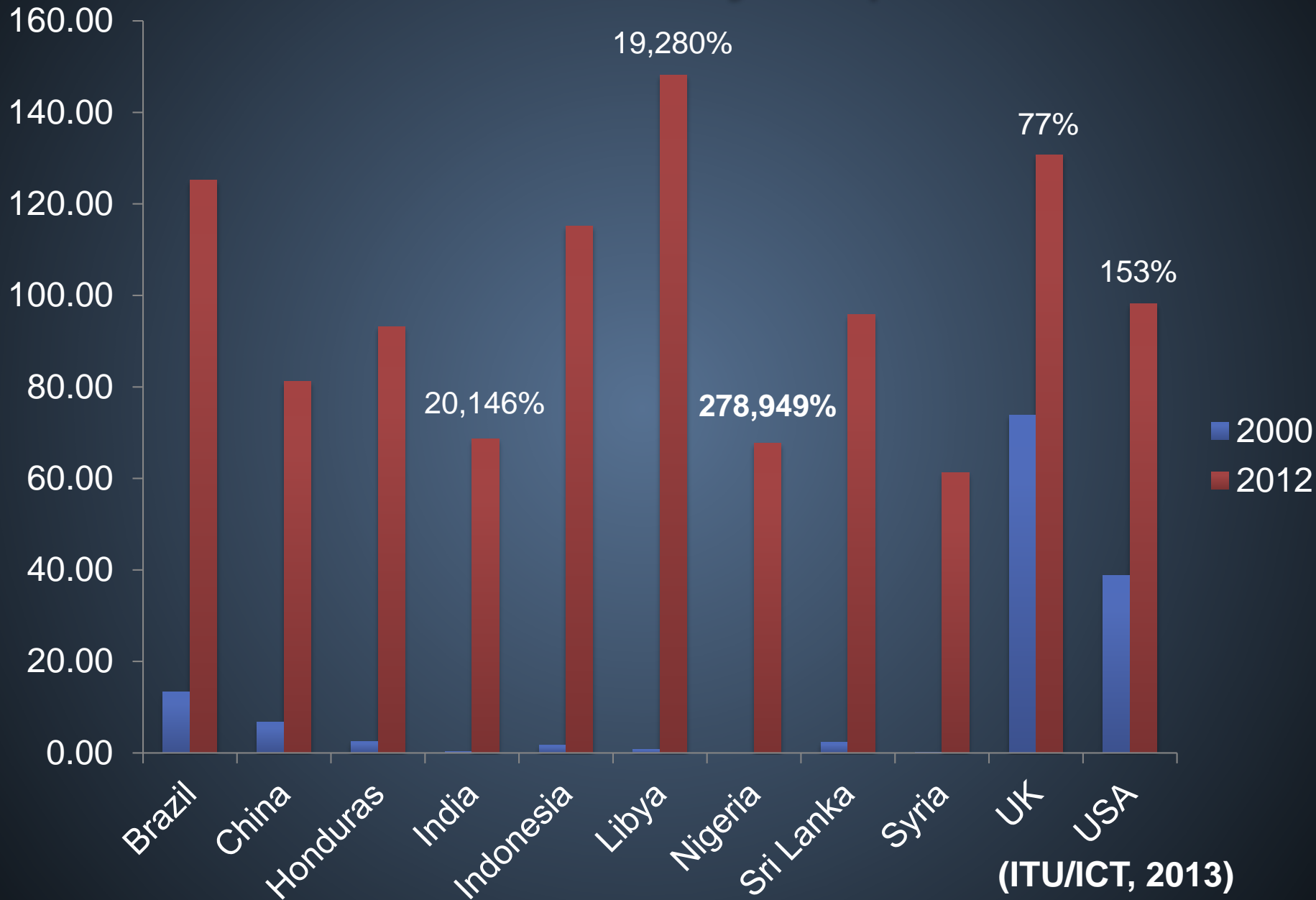- High degree of technical and mechanical skill among urban populations

The enemy is not the only threat…
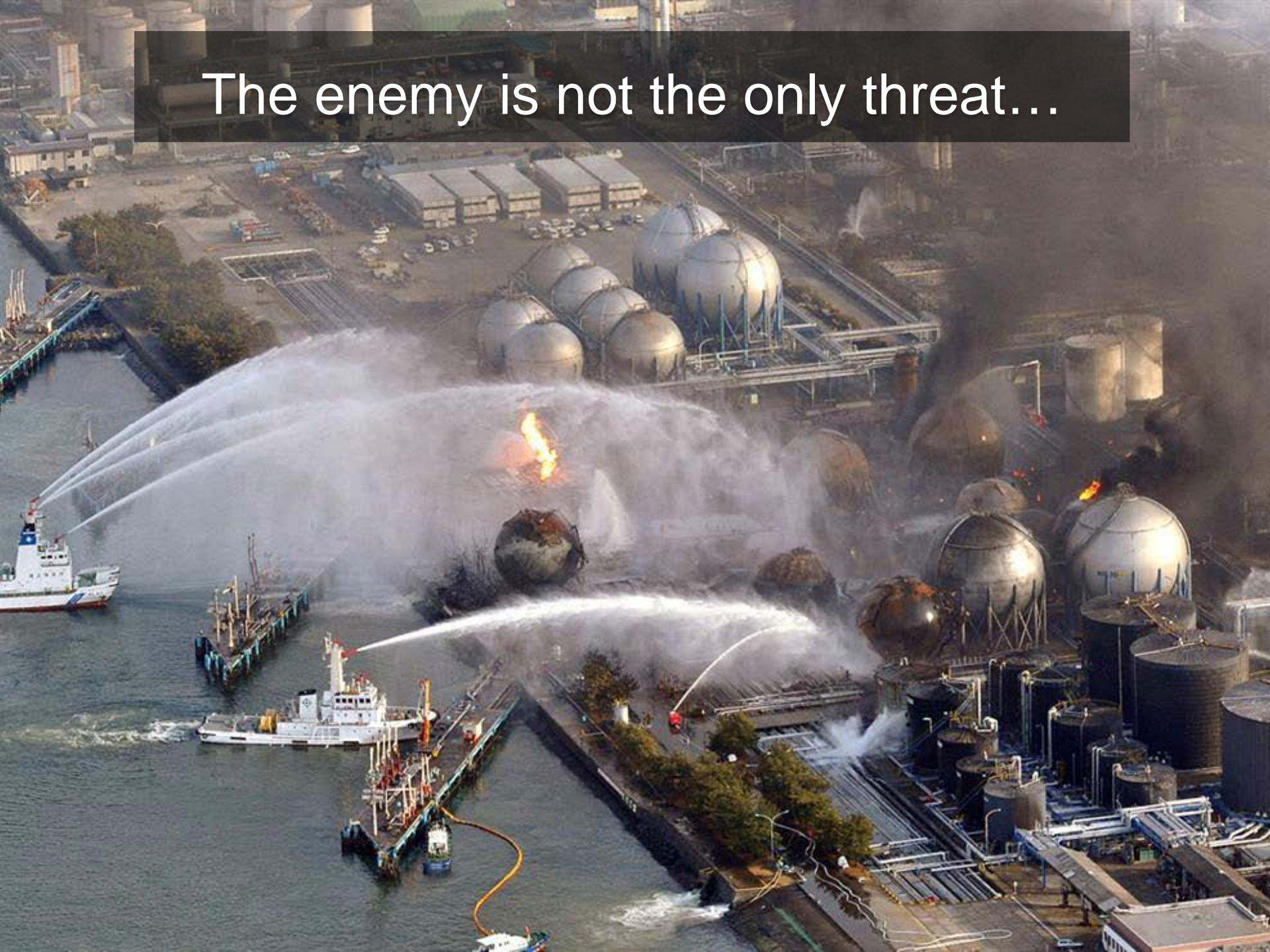
2.
Emerging and disruptive technology

The connectivity explosion

(ITU/ICT, 2013)

Disruptive technology

If a commercial product goes through a generation every two years, and the military cycle takes six years per generation, then in twelve years the military product goes from being four times as powerful as the competition to a quarter as powerful…

Technologies developed for phones fit well with the requirements for small drones. Like phones, drones need miniature cameras, GPS navigation, and data processing power. Both share the same need for minimal size, weight, and power. A drone is simply a smartphone with wings, and the wings are the cheap part.

David Hambling, *Swarm Troopers*, 2015, p4

Mosul, Iraq
ISIS grenade-carrying drone
02.2017

Tele-operated sniper rifle
Near Kirkuk
01.2013

**3D printed Colt 1911
.45 caliber Automatic
Pistol**
Solid Concepts, Inc.
11.2013

PLASTIKOV V2.0 3D-PRINTABLE AKM RECEIVER

IVANTHETROLL

The Plastikov v2.0 is a 3D-printable AKM receiver.
This project represents the first known printable AKM-pattern receiver. Tested over 10 versions, 3000 rounds of ammo, over the course of four months.

The updated version (v2.0) is compatible with AR15-based stocks, generic rear trunnions, and a wider variety of AKM parts kits as a result.

DOWNLOAD

SHARE

👁 15.3K   💬 3   ⬇ 276

MIRROR LINK: MIRROR

Aleppo, Syria
Homemade tank with video-enabled remote weapon station

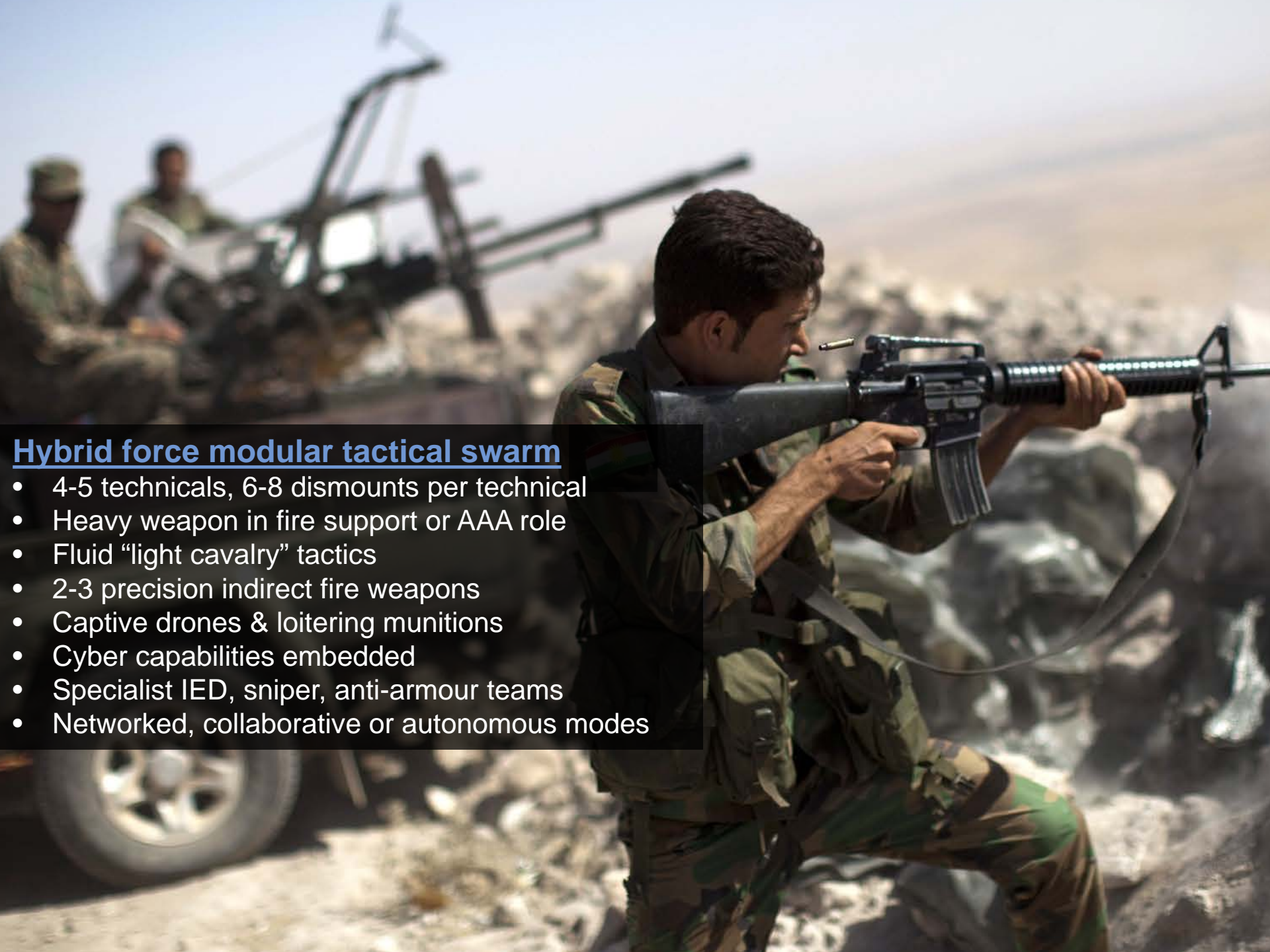# Armored SVBIED=precision guided missile

3.
Emerging urban tactics

Hybrid force modular tactical swarm
- 4-5 technicals, 6-8 dismounts per technical
- Heavy weapon in fire support or AAA role
- Fluid "light cavalry" tactics
- 2-3 precision indirect fire weapons
- Captive drones & loitering munitions
- Cyber capabilities embedded
- Specialist IED, sniper, anti-armour teams
- Networked, collaborative or autonomous modes

Operational Parameters

- Leaderless resistance, no "brain" or HQ—remote or stand-off controller or one-way broadcast of operational guidance

- Basic element: the autonomous, self-organising combat group (20-40 pax, 3-5 vehicles, heavy/light weapons mix, specialist kill teams, fluid formations and organisations, vertical [drone] manoeuvre

- Infestation of complex environment (embedded in physical structures and populations)

- large numbers of small multi-role platforms operating in a dynamic swarm

- modular organisations to lowest possible level (combat pairs)

- cooperative and remote engagement, through repurposing consumer electronics and industrial capacity

- cyber-kinetic ops, reflexive control and manipulation of perceptions

- Improvizable capabilities (e.g. 3D printing), technological "hugging" and high latent technological capacity in the population,

- diaspora linkages and retaliation options, manipulation of social movements and public protests (incl. general strike);

- no-go areas, control by interdiction, commuter insurgency, tactical use of terror to shape force deployment options

- actions across the full breadth and depth of an urban-peri-urban-rural nodal matrix

Emerging enemy approaches

1. Actions across the full breadth and depth of an urban/peri-urban/rural nodal matrix (urban centre, "belts", exurbs, satellite cities)

2. Leaderless resistance, no "brain" or HQ—acephalous swarms, remote or stand-off control nodes, or one-way broadcast of operational guidance

3. "Infestation" of urban environment (embedded in physical structures, hollow and interior spaces, and populations)

4. Large numbers of small multi-role platforms operating in a dynamic swarm

5. Modular organisations to lowest possible level (combat pairs)

6. Cooperative and remote engagement, through repurposing consumer electronics and industrial capacity

7. Cyber-kinetic ops—cyber as an adjunct integrated manoeuvre space

8. Improvisable capabilities (eg 3D printing), technological "hugging" and high latent technological capacity in the population

9. Diaspora linkages and retaliation options, manipulation of social movements and public protests (incl. general strike)

10. No-go and no-see areas, control by interdiction, commuter insurgency, tactical use of terror to shape adversary deployment

Tactics in the urban defence

- Less focused on area defence of urban areas, more on actively defending surrounding rural zones (belts)

- Urban center may be economy of force, with main effort withheld and stronger counterattack and QRF operating in belts

- Little tendency to fight "last stand" defensive actions: area denial and active (flexible) defence, mobile mesh or network defence

- Likely to fade away in face of strong attack, then engage in rapid counterattacks using stay-behind groups or multi-planar reinfiltration

- Active patrolling—fighting patrols, recce patrols, raids, use of many small actions as cover/to desensitize and shape defenders ahead of major strikes

- River-borne and seaborne attacks, typically by night and in bad weather

Urban networked defence
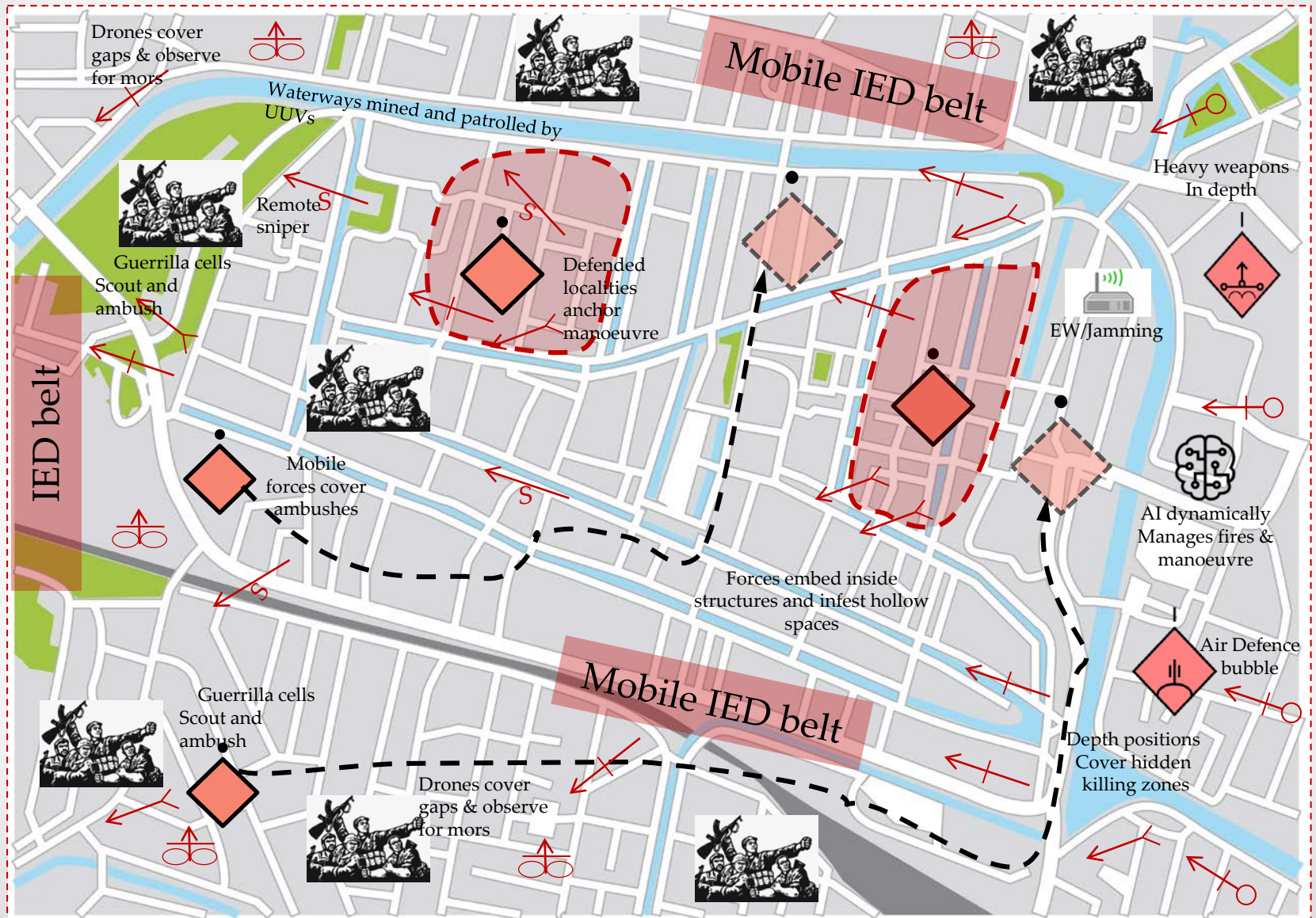
Tactics in the urban attack

o Reflexive control/mildec: place the enemy in a cognitive box

o Use of terrorism to manipulate (fix) defender laydown

o Multiple small modular fighting groups

o Urban, peri-urban and rural networked cells to support a pseudo-conventional main force (underground, auxiliary and guerrilla [partisan] force)

o Urban siege ("raid and hold")

o Baited ambushes on relief force routes

o Sabotage of sea/air points of entry
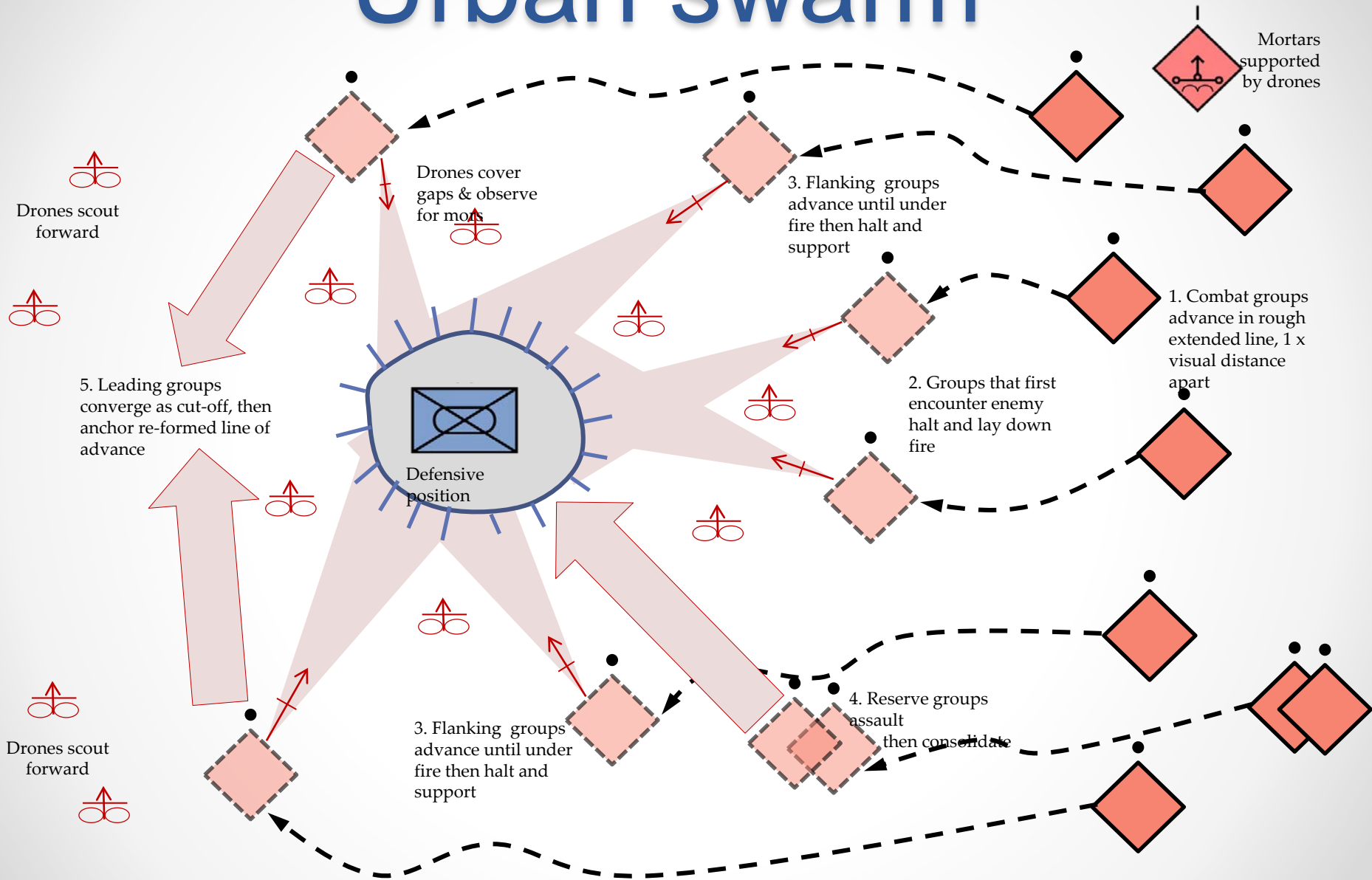
o House bombs, VBIEDs, drone IEDs, "artificial bird strike"

Traffic Square

Governor's office

Hospital

Kunduz

Prison

Police headquarters

500m   2,000 ft

KUNDUZ PROVINCE

Kabul

AFGHANISTAN

Bala Hisar

Kunduz

Airport

2km   1 mile

Months of logistic and "guerrilla diplomacy" preparation. Infil of small urban guerrilla cells (5-15-man teams) to exurbs/outskirts from D-30. Exploitation of Eid festival. Three converging columns simultaneously atk from multiple axes, guerrillas attack key objs from rear. Focus on driving police and ANA to airport, then ambushing relief column.

Urban swarm

Mortars supported by drones

Drones scout forward

Drones cover gaps & observe for mors

3. Flanking groups advance until under fire then halt and support

1. Combat groups advance in rough extended line, 1 x visual distance apart

5. Leading groups converge as cut-off, then anchor re-formed line of advance

Defensive position

2. Groups that first encounter enemy halt and lay down fire

Drones scout forward

3. Flanking groups advance until under fire then halt and support

4. Reserve groups assault then consolidate

Urban insurgency

- Multi-path re-infiltration of previously cleared areas
- Mobile IEDs repositioned by drone
- Commuter insurgency, urban areas denied not defended
- Anti-aircraft ambushes
- Runway and harbour denial operations
- Snipers, mortars in depth (keyhole shots, observers forward or remotely located using Google Earth/GPS/GLONASS)
- Anti-tank kill teams working in on armour from flanks
- Tunneling and placement of IEDs under buildings
- The tunnel as a network (cf. ATN approach to IEDs)
- Mounted counterattack in technicals against HQ
- House bombs, SVBIEDs, IEDs in thick defensive clusters

Urban terrorism

o Sabotage using SCADA systems and "smart city" internet-of-things infrastructure

o Subversion/co-option of security forces & police

o Soft targets, mix of low-tech and high-tech attacks

o Terrorist attacks on infrastructure and population clusters

o Social movement manipulation (riots, flash mobs, strikes)

o Collaboration and competition with crime groups

o CBRN terrorism--industrial incident, drone-based spray of nerve agent, mass panic/population move

o Deception-based ambushes using cyber-manipulation

o Ability to go kinetic in small groups (assault pairs) at short notice for complex attacks
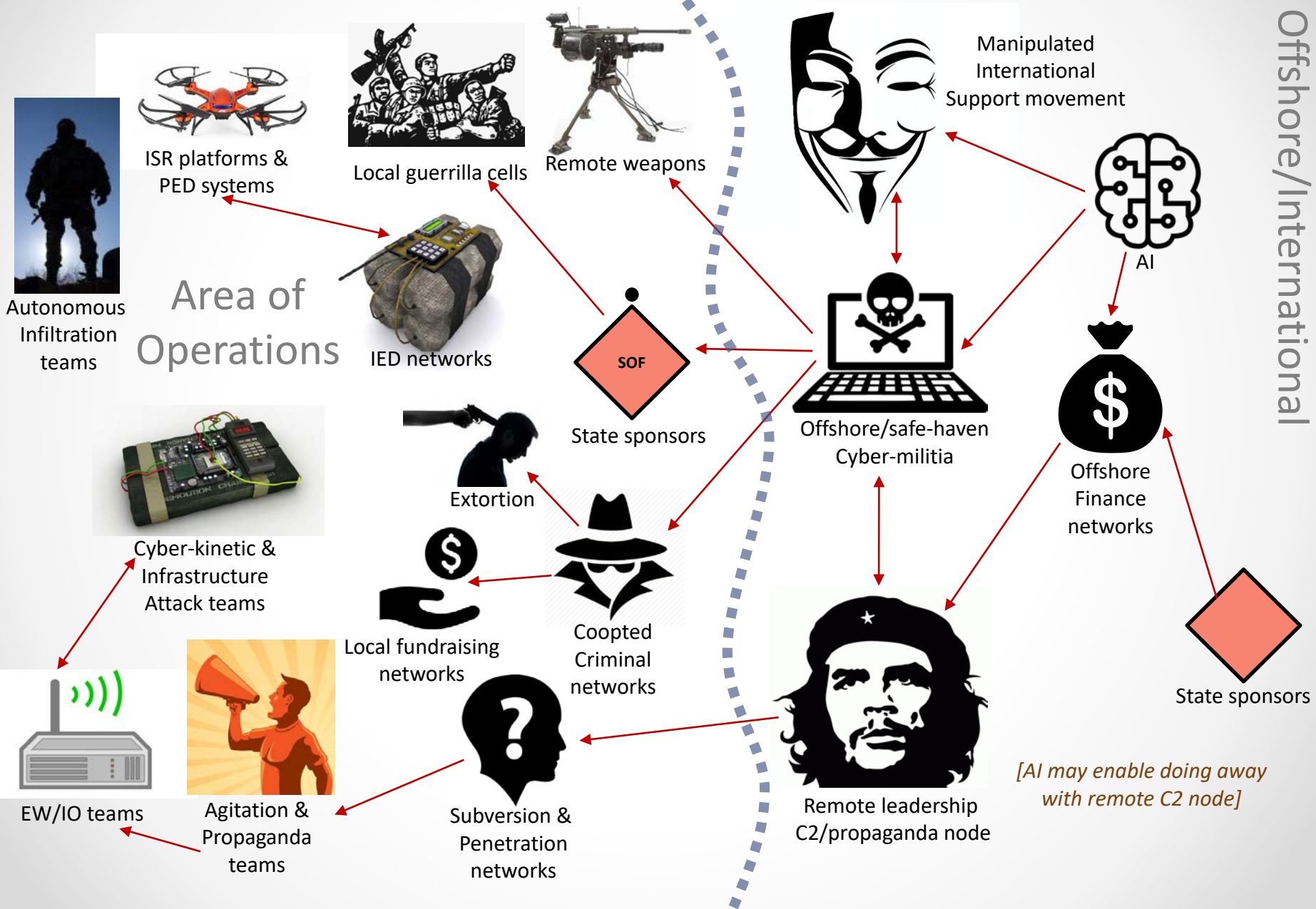
CST Terminus
Mohamed Ajmal
Kasab, 2140hrs
11.26.2008

Individual Equipment

AK-47/Type 56 assault rifle
Pakistani-copy Colt auto pistol
2 mags 9 mm pistol ammo,
600 rounds rifle ammo
8-10 Chinese Type 86 grenades
RDX demolition charges
Garmin GPS
Detailed target maps
Cellphone with extra SIM cards
(Indian/U.S.)
Thuraya satphone
Water & emergency rations
Change of clothes
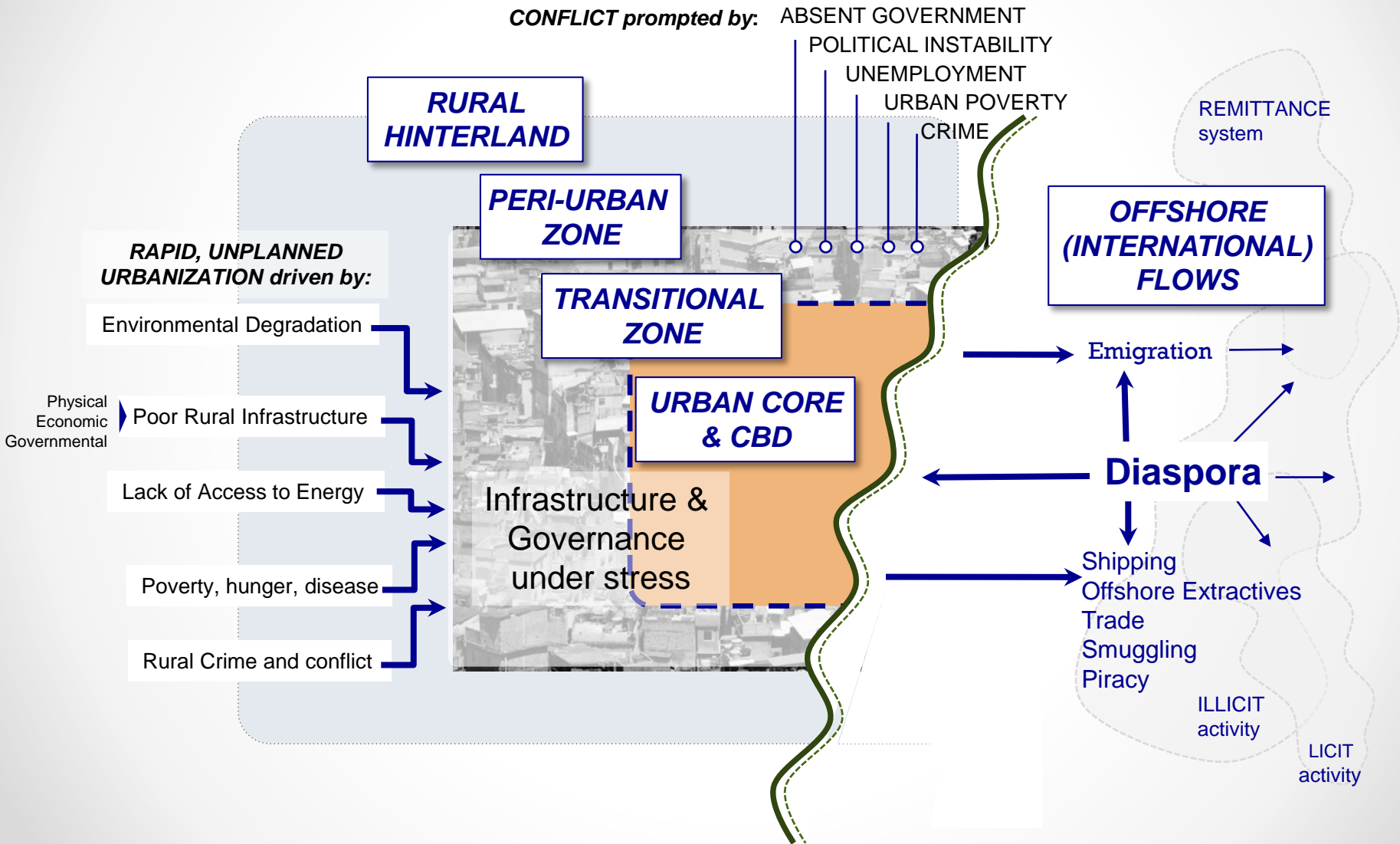False ID
Indian cash, Credit cards
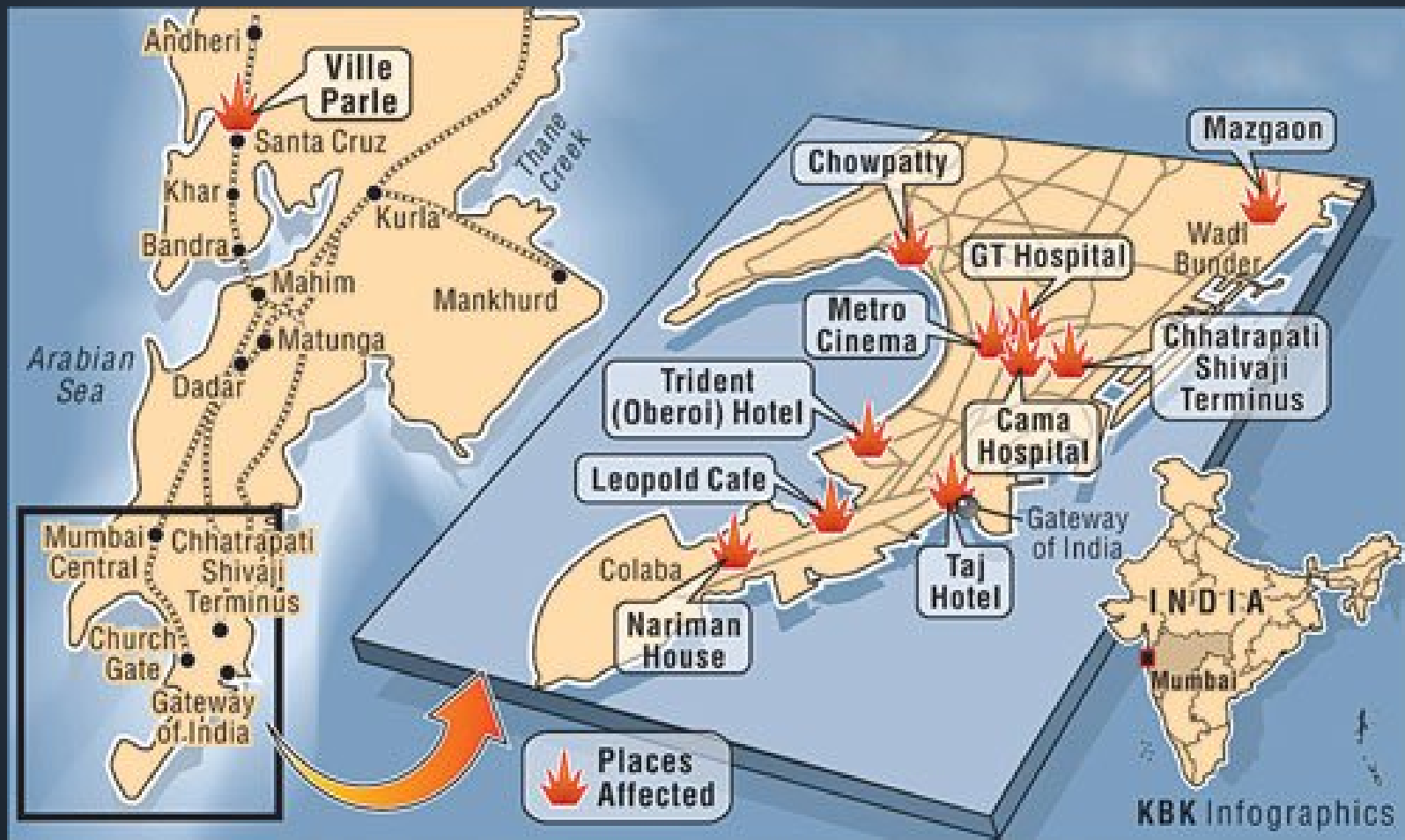Cocaine, LSD, steroids

Future networked hybrid guerrilla?

Offshore/International

ISR platforms & PED systems

Local guerrilla cells

Remote weapons

Manipulated International Support movement

AI

Autonomous Infiltration teams

Area of Operations

IED networks

SOF

State sponsors

Offshore/safe-haven Cyber-militia

Offshore Finance networks

Cyber-kinetic & Infrastructure Attack teams

Extortion

Local fundraising networks

Coopted Criminal networks

State sponsors

EW/IO teams

Agitation & Propaganda teams

Subversion & Penetration networks

Remote leadership C2/propaganda node

[AI may enable doing away with remote C2 node]

4.
Weaponizing the city

The City as a System

CONFLICT prompted by: ABSENT GOVERNMENT
POLITICAL INSTABILITY
UNEMPLOYMENT
URBAN POVERTY
CRIME

RURAL HINTERLAND

PERI-URBAN ZONE

TRANSITIONAL ZONE

URBAN CORE & CBD

OFFSHORE (INTERNATIONAL) FLOWS

REMITTANCE system

RAPID, UNPLANNED URBANIZATION driven by:

Environmental Degradation

Physical
Economic
Governmental

Poor Rural Infrastructure

Lack of Access to Energy

Poverty, hunger, disease

Rural Crime and conflict

Infrastructure & Governance under stress

Emigration

Diaspora

Shipping
Offshore Extractives
Trade
Smuggling
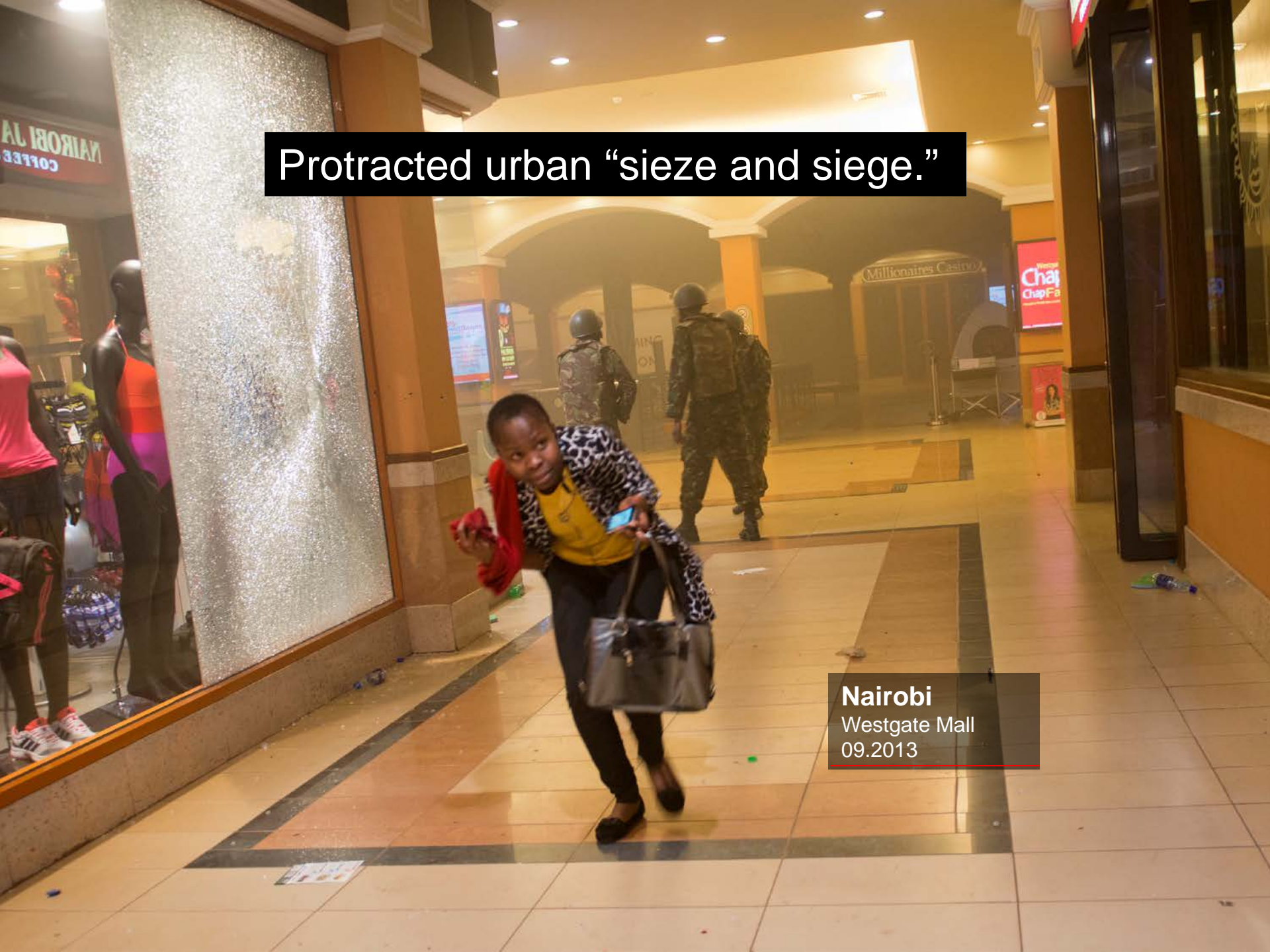Piracy

ILLICIT activity

LICIT activity

A "professional" urban networked littoral raid

Protracted urban "sieze and siege."

Nairobi
Westgate Mall
09.2013

Nice, 14 July 2016

- Low-tech attack exploiting spatial layout and predicted crowd flow dynamics

Las Vegas, 1 October 2017

Non-ideological (?) single-shooter attack exploiting spatial layout and crowd flows

Questions and Discussion

David J. Kilcullen

+1 703 475 8526

davidjkilcullen@gmail.com